

Notice of Allowability

Application No.

10/707,257

Examiner

Audrey Y. Chang

Applicant(s)

BI, BAOKANG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on December 20, 2005.
2. ☒ The allowed claim(s) is/are 1, 4-7, 10, 12-17, 20, and 22-29, renumbered as 1-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

REASONS FOR ALLOWANCE

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **December 23, 2005** has been entered.
2. This Office Action is also in response to applicant's amendment filed on **December 20, 2005**, which has been entered into the file.
3. By this amendment, the applicant has amended claims 1, 10, 14, 17 and 28 and has canceled claims 2-3, 8-9, 11, 18-19, 21, and 30-47.
4. Claims 1, 4-7, 10, 12-17, 20, 22-29 remain pending in this application.

Examiner's Reasons For Allowance

5. The following is an examiner's statement of reasons for allowance: of the prior art references considered, none has disclosed a *diffractive modulating element* for modulating and diffracting incident wave wherein the element comprises a *first plate assembly* comprising a *first zone plate* with *alternative reflective zones* and *transmissive zones* to the incident wave wherein the *zone plate* being a *Fresnel zone plate* consisting of *serious concentric circular zones* with the zone widths specified in the claims and a *second plate assembly* comprising a *second reflective zone plate complementary* to the first zone plate wherein the *zone plate* being a *Fresnel zone plate* consisting of a series of *concentric circular zones* with the zone widths specified in the claims. The element *further comprises a displacing means* for changing the *relative distance* between the first and second zone plate assemblies between a *first configuration* with

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a distance of $m/2$ (m being integer) of the wavelength of the incident wave such that the first and second zone plates *act to reflect the incident wave as a plane mirror* and a *second configuration* with a distance of $m/2 + 1/4$ of the wavelength such that the first and second zone plate act to *diffract* the incident wave into *series of focal points* along the axis of the zone plates as *a phase zone plate*.

Prior art reference US patent issued to Hobbs et al (PN. 5,794,023) teaches a diffractive radiation element having a pair of Fresnel zone plates wherein the Fresnel zone plates are physically deformable so that the diffractive pattern can be changed. However this reference fails to teach a displacing means for varying the relative distance between the two Fresnel zone plates to make it either act as a plane mirror or a phase zone plate.

Prior art reference US patent issued to Greywall (PN. 5,684,631) teaches an optical modulator having a reflective Fresnel zone plate such that the reflective Fresnel zone plate is movable between configurations to alter the paths of the reflected light from the reflective Fresnel zone plate. However this reference **fails** to teach explicitly to include a second Fresnel zone plate complementary to the first Fresnel zone plate and a displacing means to change the relative distance between the two zone plates to provide either a configuration for plane mirror or a configuration for phase zone plate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

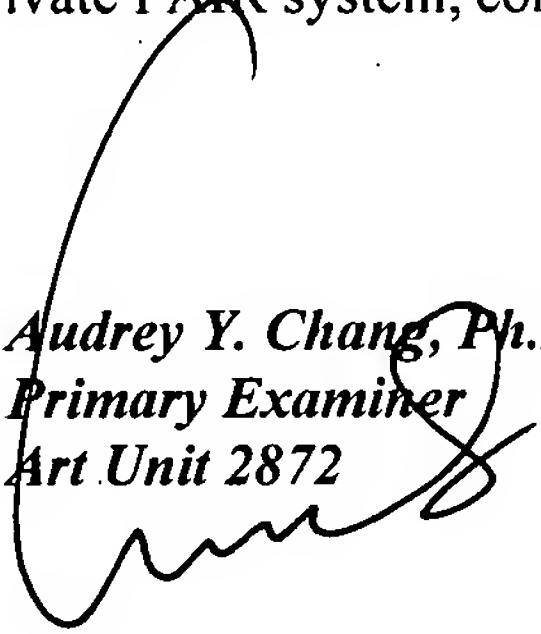
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang, Ph.D.
Primary Examiner
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A. Chang, Ph.D.